

METHOD AND APPARATUS FOR AUTOMATIC PIN DETECTION IN MICROARRAY SPOTTING INSTRUMENTS**Abstract of the Disclosure**

A method and apparatus are provided for automatically sensing the presence (or absence) of spot dispensers such as pins in various possible mounting locations in the printhead of a microarray spotting instrument. Pin-location data obtained by the method and apparatus is provided to the computer controller of the instrument, which uses the data to control the motion of the printhead during operation of the instrument. A pin detection apparatus includes one or more sensor elements that automatically sense possible pin locations in the printhead for the presence of pins. The sensor elements are preferably arranged in an array corresponding to the array of pin locations in the printhead so that pin detection at each pin location can be performed simultaneously. Various types of sensor elements can be used to locate pins in a printhead. For example, sensors can be used that are remote from or attached to a printhead. Pin sensors can be used that sense pin locations from various positions relative to the printhead including above or below the printhead. Also, pin sensing can be by contact or non-contact mechanisms. The method and apparatus allow pin positions in a printhead to be quickly and accurately determined, and without significant risk of damaging the pins, which are fragile.